

ABSTRACT OF THE DISCLOSURE

METHOD AND SYSTEM FOR ENERGY MANAGEMENT VIA ENERGY-AWARE PROCESS SCHEDULING

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A method and system for energy management via energy-aware process scheduling provides per-process energy use/power dissipation control to manage system energy requirements and thermal conditions without throttling overall system performance.

10 Use of energy by a particular process is measured or is estimated from resource requirements that are determined by the operating system or reported by the application owning the process. The scheduler then determines whether or not to allocate execution slices to the process in conformity with the measured or

15 estimated energy requirements of the process. The scheduler may insert "idle" execution slices to reduce energy use/power dissipation or may prefer low energy-use processes over high energy-use processes. Pragmatic faults may be issued as warnings from the operating system to an application to indicate that

20 energy requirements need to be curtailed. If the warning sent to the application does not result in sufficient energy use/power dissipation reduction, then the scheduler may implement the selective allocation of slices to processes that have an excessive energy requirement. The scheduler may be notified of

25 such a condition through pragmatic "critical" faults that indicate a higher degree of severity than the previously-issued warning faults.